AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A system for efficient uplink signaling to support closed loop capacity scheduling between a base station and a mobile station both of which carry out a plurality of data flows different in priority and QoS from one another,

the mobile station assigning an uplink capacity for the data flows in accordance with the steps of:

preparing combinations of capacities concerned with combinations of the data flows;

modifying the combinations of the capacities into modified combinations of capacities; and

determining the uplink capacity on the basis of the modified combinations of capacities.

2. (currently amended): A system as claimed in claim 1, wherein the modifying step comprises the steps of:

dividing the data flows with reference to the priority and QoS into a plurality of groups; and

individually pointing the plurality of groups by sub pointers to obtain the modified combinations of capacities.

3. (currently amended): A system as claimed in claim 2, wherein the dividing step ~~is divided~~ includes dividing the data flows into a first group of a high priority and a second group of a low priority.

4. (original): A system as claimed in claim 3, wherein the steps further comprises the step of :

transmitting the representatives of the sub pointers by arranging them within a capacity request frame.

5. (original): A system as claimed in claim 4, wherein the transmitting step comprises the step of:

periodically arranging the representatives of the sub pointers within the capacity request frame.

6. (original): A system as claimed in claim 5, wherein the transmitting step comprises the step of:

a periodically arranging flow identifiers together with the representatives of the sub pointers within the capacity request frame.

7. (original): A system as claimed in claim 2, further comprising the step of changing values indicated by the sub pointers based on capacity assignment information of which the base station informs the mobile station.

8. (original): A method for efficient uplink signaling to support closed loop capacity scheduling between a base station and a mobile station both of which carry out a plurality of data flows different in priority and QoS from one another, the method comprising the steps of:

preparing, in the mobile station, combinations of capacities concerned with combinations of the data flows;

modifying, in the mobile station, the combinations of the capacities into modified combinations of capacities; and

determining an uplink capacity on the basis of the modified combinations of capacities in the mobile station.

9. (original): A method as claimed in claim 8, wherein the modifying step comprises the steps of:

dividing the flows with reference to the priority and QoS into a plurality of groups; and

individually pointing the plurality of groups by sub pointers to obtain the modified combinations of capacities.

10. (currently amended): A method as claimed in claim 9, wherein the dividing step is divided includes dividing the data flows into a first group of a high priority and a second group of a low priority.

11. (original): A method as claimed in claim 10, wherein the steps further comprises the step of :

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transmitting the representatives of the sub pointers by arranging them within a capacity request frame.

12. (original): A system as claimed in claim 9, further comprising the step of changing values indicated by the sub pointers based on capacity assignment information of which the base station informs the mobile station.

13. (original): A mobile station for transmitting a plurality of data flows different in priority and QoS from one another, comprising:

receiving means for receiving a capacity assignment message related to combinations of capacities concerned with the data flows;

modifying means for modifying the combinations of capacities into modified combinations of capacities; and

transmitting means for transmitting a capacity request message related to the modified combinations of capacities in the form of a capacity request message frame.

14. (original): A mobile station as claimed in claim 13, wherein the capacity request message frame includes two different choices of frames.

15. (original): A base station co-operated with the mobile station claimed in claim 13 or 14, the base station comprising:

forming means, responsive to the capacity request message, for forming a capacity assignment message including capacity assignment of the data flows; and

transmitting means for transmitting the capacity assignment message to the mobile

station.

16. (original): A method of control signal transmission for supporting a closed-loop

capacity scheduling method used in a system comprising a mobile station capable of transmitting

a plurality of data flows to a base station, any one of a plurality of priority levels being assigned

to each of the data flows, wherein

the mobile station transmits to the base station a provisional scheduling information

which is given by dividing the data flows into groups on the basis of the priority levels of each of

the data flows and by producing the provisional scheduling information based on a buffer

accumulation amount of the data flows of each group,

the base station determines an assigned capacity for the data flow on the basis of the

provisional scheduling information,

the base station notifies to the mobile station the assigned capacity and information

designating the data flow, and

the mobile station transmits the data flow on the basis of the received assigned capacity.

17. (currently amended): A method of control signal transmission as claimed in claim 16

wherein, on determining the assigned capacity, the base station ~~carrries~~ carries out the steps of:

calculating a required capacity for each of the data flows from the provisional scheduling

information, and

determining, in case where a total of the required capacity exceeds a usable capacity, an

allowable capacity smaller than the required capacity on the basis of the priority level.

18. (original): A method of control signal transmission as claimed in claim 16, wherein the assigned capacity notified from the base station to the mobile station comprises flow identification information of each of the data flows and an allowable capacity usable for the data flow.

19. (new): A system as claimed in claim 3, wherein the data flows having the high priority are grouped together into the first group and a first sub pointer is assigned to the first group and the data flows having the low priority are grouped together into the second group and a second sub pointer is assigned to the second group.

20. (new): A system as claimed in claim 19, wherein the data flows are automatically grouped together according to a priority.

21. (new): A system as claimed in claim 19, wherein a change of capacity of the first or second group does not interfere with a capacity of the other group.

22. (new): A system as claimed in claim 3, wherein the dividing step includes grouping the data flows into a plurality of groups with reference to the priority and QoS of each data flow

23. (new): A system as claimed in claim 22, wherein the dividing step further includes dividing the plurality of groups into subsets of combinations of capacities, each subset of combinations of capacities having a set-size assigned thereto.

24. (new): A system as claimed in claim 23, wherein each subset of combination of capacities has a sub pointer assigned thereto.

25. (new): A system as claimed in claim 5, wherein the periodically arranging the representatives of the sub pointers includes transmitting differential signaling on a per sub pointer basis such that differential signaling of multiple sub pointes are sent in a time division manner.

26. (new): A system as claimed in claim 25, wherein the periodically arranging the representatives of the sub pointers further includes mapping differential signaling in a capacity request frame which is divided into a plurality of frequency slots and assigning each of the plurality of frequency slots to one of the groups of data flows in the time division manner.

27. (new): A system as claimed in claim 26, wherein the assignment of the plurality of frequency slots is performed according to an imbalanced signaling bandwidth distribution among the data flows such that a larger number of frequency slots are assigned to the first group having the high priority than to the second group having the low priority.

28. (new): A system as claimed in claim 1, wherein each of the combination of capacities includes an uplink capacity for multiple data flows and indicates a distribution of how a total capacity is divided into the multiple data flows.